WHAT IS CLAIMED IS:

1. A moving object tracking apparatus for detecting and tracking one or more moving objects in an environment, comprising:

an optical system including a hyperboloidal mirror for capturing visual field information on a 360° environment;

a single stationary camera for converting the captured visual field information to image information; and

an information processing section for processing the image information,

wherein the information processing section detects and tracks the one or more moving objects based on the image information.

2. A moving object tracking apparatus according to claim 1, wherein:

the image information includes all-direction image information; and

the information processing section converts at least a portion of the all-direction image information to panoramic image information.

3. A moving object tracking apparatus according to claim 2, wherein the information processing section provides a marker to each of the one or more moving objects in the panoramic image information.

4. A moving object tracking apparatus according to claim 3, wherein the information processing section provides a marker to each of the one or more moving objects depending on a size of each of the one or more moving objects.

5. A moving object tracking apparatus according to claim 1, wherein:

the image information includes all-direction image information; and

the information processing section converts at least a portion of the all-direction image information to perspective projection image information.

6. A moving object tracking apparatus according to claim 1, wherein the information processing section processes the image information using a previously prepared table.

7. A moving object tracking apparatus according to claim 1, wherein the information processing section processes the image information using only one kind of data out of RGB data in the image information.

8. A moving object tracking apparatus according to claim 1, wherein the information processing section detects the one or more moving objects based on a brightness difference between predetermined frame information and frame information previous to the predetermined frame information of the image information.